

Chronic, Diabetic Foot Wounds with Ischemia and Tissue Loss: Use of Advanced Wound Care Techniques, Silver Plated Cloth, Allografts and Vascular Intervention to Prevent Further Tissue Loss

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Twenty-five consecutive patients with insulin dependent diabetes, chronic foot and ankle wounds with pre-existent tissue loss, ischemia (ankle arm index of .40-.80) were seen and evaluated.

All patients previously had moist wound care, been evaluated for bypass which had been performed if possible, had modern wound care modalities such as hyperbaric oxygen (12 patients), wound VAC (18 patients) and ultrasound and electrical stimulation modalities 25 patients). All patients had previously been offered amputation and had refused. They were referred to us for a final attempt at limb salvage.

Evaluation for ischemia in the wound care program revealed 15 patients who could be potentially further treated with a new vascular intervention by a specialized atherectomy catheter.* This catheter was designed to open up occluded tibial arteries which was not previously possible, in patients, particularly those with diabetes. This was successful in 15/15 of the above patients who were determined to be candidates for the procedure. All of the patients were also treated with antiplatelet drugs, "statin" medications and cilostazol for their peripheral arterial disease.

Advanced wound care techniques involved the use of allografts (average of three per patient) over 25 wounds in 25 patients with debrided unhealed wounds.** Allografts were dressed with moist silver dressings.*** Allografts were left in place for 2-4 weeks with periodic moistening of the silver to maintain the environment. Silver dressings were changed every two weeks. Allografts were periodically debrided to remove nonadherent tissue at the time silver dressings were changed.

Fifteen of the twenty-five patients previously assigned to a major amputation emerged from our treatment with a functional foot. This has persisted for 6-24 months which is the current follow up of this group. Six patients required a major amputation but at a lower level than previously planned. There were no episodes of sepsis. Two patients died (causes not directly related to wound) and two had a major amputation (above knee) as originally planned. The deaths and major amputations occurred in patients without renal failure and these patients also had successful opening of their tibial arteries with indices of 0.8 and 0.72 respectively.

Clearly the use of these advanced techniques dramatically improved the limb salvage and function of this special group of ischemic, diabetic patients with pre-existing tissue loss.

* SilverHawk™ Plaque Excision System, Foxhollow Technologies, Redwood City, California

**AlloDerm™, Lifecell Corporation, Branchburg, New Jersey

***Silverlon™, Argentum Medical, LLC., Willowbrook, Illinois 60527

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Fig. 1 Diagrammatic picture of arterial plaque excision device



Fig. 2 Pictures (left) of initial necrotic toes before and after initial debridement of tissue and bone following arterial plaque excision



Fig. 3. Above, left to right, top to bottom. Progression of healing using three allograft applications and Silver Plated Cloth** of ischemic diabetic foot wound with initial gangrene.

| Patient Population | Data n = 25 pts. |
|--------------------|------------------|
| Age | 38-82 |
| Male | 14 |
| Female | 11 |
| Tobacco use | 7 |
| Renal failure | 8 |
| 0.4 and 0.8 | 25 |
| Wound areas | AV=15cc |